

## A problem of hearing 1

In the video the audiologist carries out several processes to diagnose the type of hearing loss.



Consultation: Asking the patient about their own concerns and what they may have trouble hearing.



Otoscopy: Checking for levels of wax or other blockages by a visual examination of the ear canal.



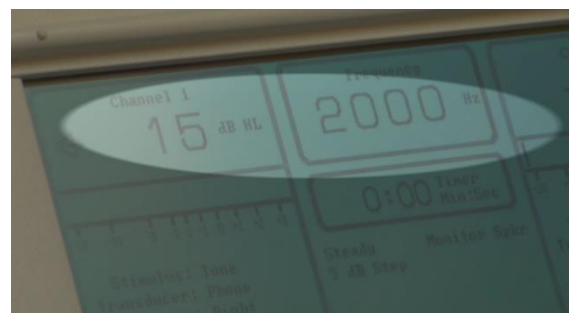
Tympanometry: Testing the function of the middle ear by using a low frequency sound and changing the air pressure in the ear canal. This gives information about the condition of the ear drum and middle ear.



Tympanometry results: The peak of the graph shows the air pressure at which the maximum sound is transmitted from ear canal to middle ear. This can be used as a measure of the middle ear pressure.

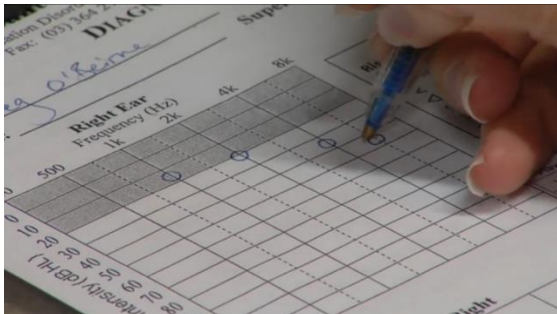


Audiology: Testing the response of the patient to sounds of different frequencies and loudness in each ear separately.



Audiology results: The loudness (dB) and frequency (Hz) of each sound is displayed and whether the patient has indicated that they heard the sound.

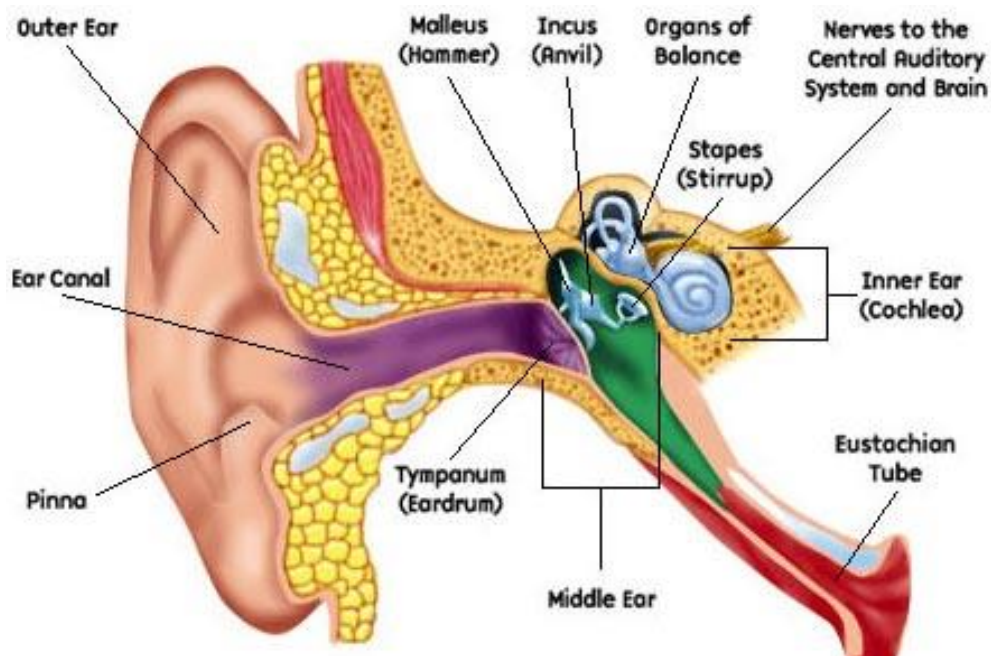




Audiograms: These graphs are used to record the frequency of each sound and minimum loudness at which it is heard consistently. The symbol O is used for the right ear and the symbol X for the left ear. These graphs may be produced electronically but are a prime source of data from which the audiologist diagnoses the problem.



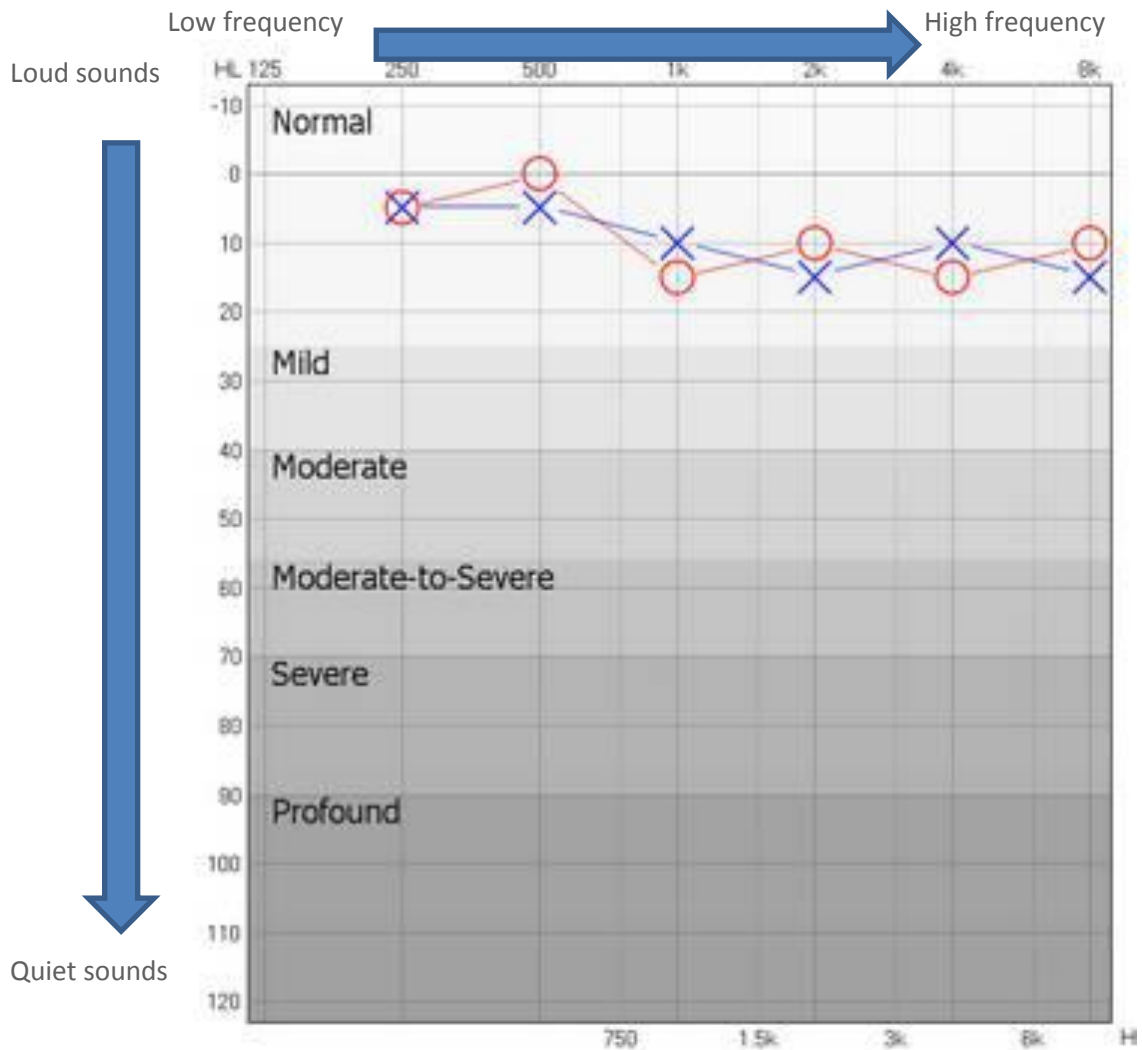
Bone conduction: The headset is placed behind the ear so the sound is conducted through the bone to the cochlea and is not dependent on air conduction to the middle ear. The other ear is 'masked' by a different sound (e.g. like rushing water) since sound conducted through the bone could reach either cochlea. The results are marked by the symbol Δ on the audiogram.



Sounds enter the outer ear as air vibrations which cause the ear drum to vibrate. This movement is passed through the middle ear (by the hammer and anvil) to the inner ear, from which signals are sent to the brain.

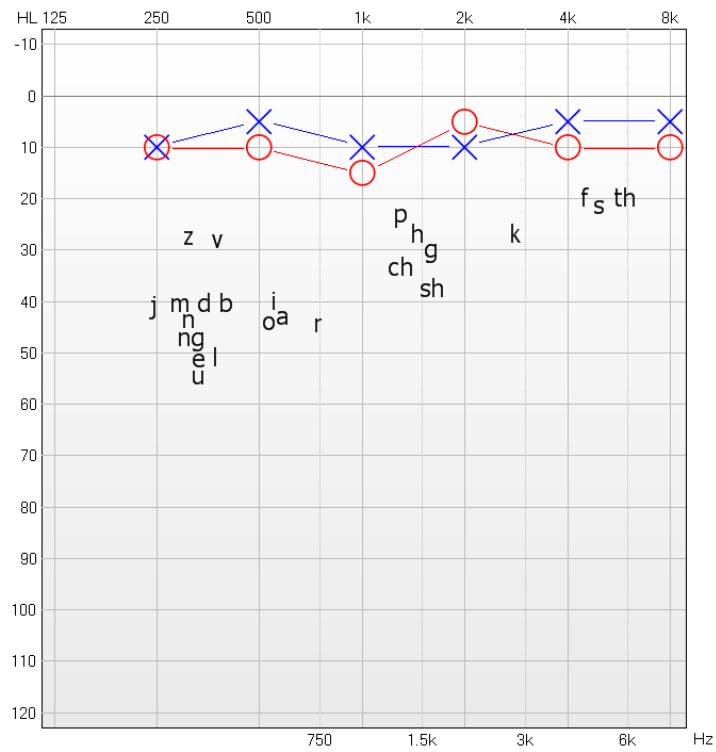
## The effects of hearing loss

This audiogram shows normal hearing (20dB or less) across the full range of frequencies. The levels that would be identified as indicating a hearing impairment are also shown.

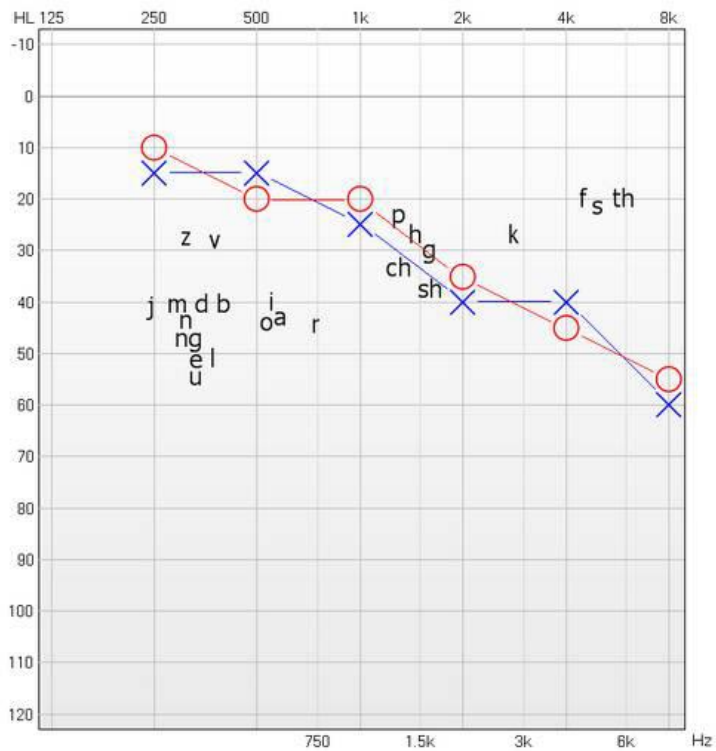


Different speech sounds have different frequencies and a loss of hearing can affect hearing of some speech sounds more than others. The two audiograms on the following page show the levels at which different speech sounds are often made, alongside 1) normal hearing levels and 2) a moderate hearing difficulty at high frequencies. With the level and type of hearing loss indicated in the second audiogram then some speech sounds may be muffled or unclear.

1) An example of normal hearing.



2) An example of moderate hearing loss at high frequencies.



Women and children usually speak at higher frequencies than men so any deterioration at higher frequencies will mean more difficulty hearing these voices.

Environmental sounds may be difficult to hear clearly with more severe hearing loss. The diagram below shows the loudness and frequency of some common sounds.

- Discuss the possible social implications of moderate to severe hearing loss.

